

AUSTRALIAN SPECIES OF THE ISOPOD FAMILY SPHAEROMIDAE
(Continued).

By W. H. BAKER.

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PLATES I. TO VI.

The following paper is a continuation of one submitted to this Society in 1926, in which I dealt with species—among others—in the collection of the Australian Museum, Sydney. Through the kindness of the authorities of the Western Australian Museum, I have had the opportunity of recording some more Western Australian forms, together with some which have come to hand since from our east and south coasts.

SPHAEROMA WALKERI, Stebbing.

Sphaeroma walkeri, Stebbing, Rep. Isopoda (collected by Prof. Herdman at Ceylon), 1902, p. 31, pl. vii.

The present specimens are from Blackwattle Bay, Darling Harbour, New South Wales.

Found not attacking timber, but were taken from surface growths. Report by inspectors.

Exosphaeroma serventii, n. sp.

Pl. i., figs. 1, 2.

The body of this elegant species is marked like many oniscids with a ground of slaty colour with small irregular lighter areas arranged on each side of a darker median region, these lighter markings are much smaller and more numerous on the anterior division of abdomen and much less numerous on the posterior division. The head is short with a small anterior transverse ridge continuous with a slight rostral elevation. The eyes are conspicuous. The segments of thorax are subequal in length, the 1st being a little shorter than the head; a very shallow longitudinal depression on each side marks off the epimera, which are obtuse. The anterior division of abdomen is short, the posterior evenly domed, but towards the end shelving off less steeply, the end is moderately pointed. The antennule has a flagellum of 12 joints. The peduncular joints of the antenna are stout, rather short, and the flagellum has 16 joints, the setae are in small groups. The epistome is elongate, pointed obtusely anteriorly, where it curves towards the rostrum. Mandibles slender, the left with 4-toothed primary plate, secondary trifold, nearly as large as primary. Spine row present; there is a well-developed molar. Maxilliped large with distal plate of 2nd joint about half as long as the whole joint, with strongly setose crown, palp large, the fringes of lobes well developed, 2nd, 3rd, and 4th joints each with distal posterior setum. Legs robust, sparsely spined, but with dense fur. Filaments of 8th sternite short and converging. Pleopoda with long fringes on the usual rami; 1st pleopod with short peduncle and 5 coupling spines, and the outer side with coarser fur than usual; outer margin of endopod straight, inner thickened, there is no outstanding spine at base of exopod (in type specimen). 2nd pleopod with rather thick appendix reaching to end of endopod, 3rd, 4th, and 5th pleopods with rami as in *E. calcareus*, except that the endopod on the 4th carries few branchial rugae.

This species is near *E. calcareus*, Dana, *E. falcatum*, Tattersall, and *E. bicolor*, Baker.

The non-ovigerous female has the abdomen a little less pointed and the legs less robust and not furry. The marsupial plates are rudimentary.

Length of male, 7 mm.

The specimens are from Pallinup Estuary, Western Australia, and were collected by D. L. Serventy, 11625, Western Australian Museum.

ISOCLADUS EXCAVATUS, Baker.

Pl. i., fig. 3.

Zuzara (Isocladus) excavata, Baker, Trans. Roy. Soc. S. Austr., vol. xxxiv., 1910, p. 84, pl. xxiv., figs. 4-6.

This Western Australian specimen seems to be older than the type. This I propose as a co-type with the following characters. The head is very short, steeply abrupt in front. The epimera are separated from the tergites by well-marked longitudinal grooves and are especially prominent on the 5th and 6th segments; on the 6th there is a small tubercle in the groove and one submedian on each side just above those that occur on the 7th segment. The process of the 7th segment is contracted behind to a point (this is probably the correct condition, that occurring in the type being a slight malformation). The anterior division of abdomen is short and tumid medianly. The posterior division is nearly flat (convexity rather exaggerated in figure) with a faint median depression above and a slight lateral furrow round the two sides meeting behind; the immediate end is slightly raised.

Length, 7 mm.

The single male specimen is from Cottesloe, Western Australia; collected from a rock pool by L. G. Glauert, placed in Western Australian Museum, 10607.

NEOSPHEROMA PLUMOSA, Whitelegge.

Sphacroma plumosa, Whitelegge, "Thetis" Scientific Results, Isopoda, pt. ii., p. 254.

Cymodopsis plumosa, Baker, Trans. Roy. Soc. S. Austr., vol. 1, p. 265, pl. xlv., figs. 6-9.

Two male specimens of this species have reached me; they are in better preservation than those dealt with in the above paper. There is no need of my further supplementing Mr. Whitelegge's description, except that I have noticed that the endopod of the 3rd pleopod bears a few branchial folds and the 4th pleopod has on both exopod and endopod some plumose setae.

The specimens are from 20 fathoms off coast, New South Wales. Presented to Australian Museum by Mr. C. W. Mulvey.

CYMODOCE BIDENTATA, var. TASMANICA.

Pl. ii., fig. 1; pl. iv., fig. 9.

The abdomen is hairy with tufts of longer hairs on the tubercles. On the posterior division there is an obscure tubercle almost under each of the two submedian projections of the anterior division, posterior to these there are a pair of tubercles on each side of the middle, the inner-more ones spiniform, the outer scarcely raised, then a median spiniform tubercle on the basal portion of the median process of the notch, and again two more side by side at its end. There is a small tubercle on the peduncular portion of the uropod above and the inner ramus has the end double-pointed.

The single specimen is from Simpson's Bay, D'Entrecasteaux Channel, Tasmania, dredged by scallop fishers in 8-15 fathoms. It is placed in the Australian Museum, Sydney.

CYMODOCE CORONATA, Haswell.

Pl. ii., figs. 3, 4.

Cymodoce coronata, Haswell, Cat. Austr. Crust., p. 292, and Trans. Linn. Soc. N.S. Wales, vol. vi., p. 10

The body is covered with very small black dots. Anteriorly the segments are nearly smooth, but posteriorly they become coarsely pubescent and granular. The head is evenly rounded with a very slight anterior transverse ridge. The eyes are prominent and large. The segments of thorax are subequal in length, the epimera are more or less acute at their posterior angles except the last, which is rounded, and falls short of their inferior level. The anterior division of abdomen is short with two submedian tubercles on its posterior border (these are very variable in size and projection). The posterior division is not very convex, it is marked by two tubercles just external to and below the two of the anterior division and two behind these nearer together, and often with points turned up (these tubercles vary much also). The deep notch of the posterior border has the median process raised and ends obtusely reaching as far as the sides of notch; an oblique sulcation from near the insertion of the uropods reaches down to the median process of the notch on each side. The epistome is short, anteriorly tumid, and has short limbs; the upper lip is transversely sulcate. The basal joint of the antennule is about twice as long as broad, its anterior distal angle is short and obtuse, the posterior reaches to near the end of the 2nd joint; the 2nd joint is small; the flagellum carries 20-30 joints. The antennal flagellum carries 34 joints. The mandibles are short and stocky, with incisory plates entire, the secondary plate on the left is close to the primary, also entire, spine row is insignificant, the molar is short, there is a strong palp, the 1st and 2nd joints of which are expanded and subequal in length. The maxilliped has crown of plate of 2nd joint with pectinate setae not very crowded, some longer setae are on the inner border, lobes of palp well developed, the crowns of each with short setae rather crowded, 2nd and 3rd joints each with a posterior setum. The legs are long and well spined; the 1st has a series of thorn-like spines on merus, carpus, and propodus, and also a small patch of fur on ischium. The merus and carpus of the following legs have furry pads on the usual joints, but this condition becomes less on the more posterior pairs; the last two pairs are well provided with spines. The filaments of the 8th sternite are rather small and slender. The 1st pleopod has the peduncle short with four or five coupling spines which appear shorter than usual, the outer side is a little depressed and densely furry; the exopod has a slightly sinuous outer margin and becomes a little broader at the end and has a large proximal spine; the inner ramus is triangulate. The appendix on the 2nd pleopod is long and very slender. The endopod of 3rd pleopod has an oblique ridge near its inner proximal angle, its outer margin is very convex. The distal end of exopod of 4th pleopod has six or seven plumose setae; the endopods of 4th and 5th pleopods are large with crowded branchial folds; the exopod of 5th pleopod has the distal division rather narrow with an outstanding apical squamose lobe, and just below it another outstanding and longer, also on the inner border a scarcely raised lobe; on the proximal division there are two smaller lobes, both outstanding, at the inner distal angle. The uropods are indurated, very setose, the inner ramus is subfusiform, reaching beyond the end of abdomen, ending in a small tooth, the outer ramus is shorter, ends very acutely, is nearly straight on its outer margin, convex on its inner.

The female of this species has mouth parts modified. It is less pubescent than the male and scarcely granular. The posterior division of abdomen is obscurely divided into two lobes or domes, and at the end is pointed with the

notch almost obliterated. The inner ramus of uropod does not reach the end of abdomen, it is nearly oblong, narrow, truncate at end, the outer ramus is shorter, very slightly sigmoid and distally acute.

Numerous specimens are placed in South Australian Museum.

Length of neotype, 17 mm.

I am informed through Mr. F. A. McNeil, Zoologist of the Australian Museum, Sydney, that the types specimens of *C. bidentata*, Haswell, and *C. coronata*, Haswell, are missing, consequently, as my identifications have been taken from the descriptions extant, which are not accompanied by figures, there is a certain amount of doubt in each case. Under the circumstances, I would now propose the present description of *C. coronata* as neotype held by the South Australian Museum.

CYMODOCE CORONATA, Haswell, var. FUSIFORMIS.

Pl. ii., figs. 2, 5-8.

This variety differs from the foregoing species in the following points. The covering is a short pubescence through which longer hairs protrude, this is easily brushed off; the body is also more granulate, being much less smooth anteriorly. The epistome and basal antennular joints are rougher with hairs and granules. The posterior margin of the anterior division of abdomen carries six tubercles, two submedian are larger and more outstanding, differing in length and projection in various specimens. The posterior division has the median process of the notch with a wide raised base and a slight sulcation above it, and close to its end is a small bifid tubercle; the sides of the notch are acute and double-pointed. The peduncle of the uropod carries a tubercle above; the inner ramus tapers to a terminal tooth in a much greater degree than in *C. coronata*, and there is a small tubercle just above the end. The outer ramus is much shorter approaching that of *C. bidentata*. There are also slight differences in the females. In this variety the two slight domes of the posterior division of abdomen are each surmounted by a small tubercle. The pubescence is coarser and more plentiful, and the abdomen is much more pointed in the non-ovigerous female.

The species and variety are very common on the southern coast of Australia. Numerous specimens have been placed in the South Australian Museum.

CYMODOCE CORONATA, var. INTERMEDIA.

Pl. ii., fig. 9.

A second variety is represented in the figure. It will be seen to be of an intermediate character.

CYMODOCE MULTIDENS, var. AUSTRALIS.

Pl. i., figs. 4-6.

Cymodoce multidens, Richardson, Marine Isopods collected in the Phillipines by U.S. Fisheries Dept., Commerce and Labour, Bureau of Fisheries, 1907-8, p. 27, fig. 26.

The body is rough with rather small granules which in parts become spiniform, very rigid and brittle. The head is narrow and anteriorly depressed where there are two submedian spiniform teeth with one median on the rostrum and two or three spinuliform granules anterior to each eye. The eyes are rounded and of moderate size. The 1st thoracic segment is longest, the remaining segments are short and nearly equal in length; the epimera of the 5th and 6th segments are squared and those of the 7th shortened. The anterior division of abdomen is short and somewhat thickened on its posterior border, the posterior division is scarcely domed, with a slight oblique ridge on each side bearing a few spinuliform granules. The posterior notch is not deeply cut, the median process is equal to the lateral and on the same level, there is a wide insinuation below

but no channel. The antennules are visible from above when the body is extended, the basal joints bear many bristle-like hairs and a crest of nine small pearly teeth with two larger ones posteriorly on each, the remaining joints are also very setose, as also the flagella, which are short with eight joints. The antennae are also very setose, the flagella of eight or nine joints. The epistome is small and consists of a rough forward portion reaching the rostrum, behind which are three transverse teeth, the lateral limbs also are marked with similar teeth. The mandibles are slender, with bifid incisory plates. The left mandible has secondary plate, spine row and molar normal. The palp of maxilliped has long lobes like that of *C. tuberculosa*, Stebbing. The legs are well spined with longer ones on the more distal joints. The filaments on the 8th sternite are well developed, as also the appendix on the 2nd pleopod, the end of which is slightly hooked. The peduncle of the 1st pleopod has four slender coupling spines and its outer side is hairy; the exopod, which is nearly oblong, has the outer proximal angle overreaching the peduncle. The endopod of the 3rd pleopod is abruptly angled distally. The exopod of the 5th has three squamose lobes slightly outstanding. The uropods are highly indurated and sublinear, the inner ramus curved outwards with a row of teeth on the underside and is coarsely setose and distally bifid. The external ramus is shorter, rough, with teeth, and also bifid and setose.

The ovigerous female of this variety is much larger than the male. The head is not depressed like it, the teeth on the forehead are absent, those on the epistome and 1st joints of the antennules are present but much smaller. The body is almost smooth. The posterior division of abdomen does not taper so much behind and the notch is less evident, marsupial plates are present but the eggs are within the body. The mouth parts are modified, but the palpal lobes of maxillipeds retain their setose condition. The uropods are similar to those of the male.

Length of male, 7 mm.

The specimens are from Western Australian coast; 10484, 10385, Western Australian Museum, collected by L. G. Glauert.

CYODOCE ACULEATA, var. GRANDIS.

Pl. i., figs. 7, 8.

Cymodoce aculeata, Haswell, Cat. Austr. Crust., p. 291, and Baker, Trans. Roy. Soc. S. Austr., vol. 1, 1926, p. 257, pl. xl, figs. 7, 8.

This fine variety agrees well with the type, except that the outermost tubercles on the posterior division of the abdomen are obsolete. This division also has two small oblique ridges below the outermost tubercles, very setose, as also is the base of the median process of the notch; the surface is minutely granular at the sides.

Length of male, 39 mm.; breadth, 19 mm.

Specimens are placed in South Australian Museum.

CYODOCE LONGISTYLIS, Miers.

Pl. vi., figs. 1-4.

Cymodoce longistylis, Miers, Voyage of the "Alert," p. 305, pl. xxxiii., fig. C.

The present specimens are from Port Hacking, New South Wales, collected by Dr. C. Anderson.

The body is very hairy, many of the hairs being plumose. The forehead has a continuous ridge between the eyes. The median process of the abdominal notch is lingulate seen from below, on each of the three termini formed by the notch and process there is a small upstanding tubercle. The epistome is covered with large granules. The mandibles have entire incisory plates. The legs are well provided with spines.

Cilicaeopsis sculpta, n. sp.

Pl. iii., figs. 5-7.

The anterior region of the head is highly sculptured, there is a prominent rostral portion with prominences on each side, and these flanked by lobes close to the eyes. The eyes are large. The posterior margins of each of the thoracic segments except the 1st have a row of strong backward curved teeth. The anterior division of the abdomen is granulate with some larger dentiform on the dorsal region, posteriorly there is a long process which is finely granular and projects backwards well beyond the end of abdomen but not so far as the uropods, it is rather slender and bifid at the extremity. The posterior division consists of two granulate and setose domes separated by a sulcus, each dome has one or more teeth on its summit. The surface then descends abruptly to the posterior margin, which is medianly cut by a semicircular notch transversely shallow but with a deep channel, the exit of which is acutely toothed, with another tooth higher up on each side. The epistome is highly sculptured, it has a median prominence curved backwards, on its lateral limbs there are three or four tubercles on each.

The basal joints of the antennules have each a longitudinal row of three or four tubercles. The 2nd joint of the antennule is small and has a small tubercle above, the 3rd joint is very slender and longer, the flagellum has 14 joints. The flagellum of the antenna has 14 or 15 joints. The mandibles are robust with a few small tubercles on their basal portions, incisory plates entire, the left mandible with slightly bifid secondary plate. The palp of the maxilliped has long lobes. The legs are robust and sparingly spined without furry pads. The 1st pair have small spines on merus, carpus, and propodus, the dactyles are short and two-clawed. The filaments on 8th sternum are long and slender. The exopod of the 1st pleopod has a small proximal spine on the outer side, the endopod is triangular and rather broader than long, there are three coupling spines on the peduncle. The 2nd pleopod is similar, the appendix is small and reaches about as far as the fringe of its endopod. The inner rami of uropods are reduced to two small spiniform tubercles. The outer rami are very large, rough with tubercles, club-shaped, covered densely with short setae, each ramus spreads very widely.

This species resembles *C. granulata*, Whitelegge; also *C. whiteleggei*, Stebbing, differing especially in the much reduced inner ramus of uropod.

Length, 12 mm.

Locality, Cottesloe, Western Australia. Col. L. Glauert.

The type is in the Western Australian Museum, Nos. 10850, 10672, 10496/10501.

Paracilicoea gigas, n. sp.

Pl. iii., figs. 1-4.

The body is covered with a very short pubescence and many small pearly granules which become larger posteriorly. The head is rather longer than the 1st thoracic segment but much narrower. The eyes are large, 1st segment of thorax longest, the others are rather short when the animal is extended, the epimera are marked off by distinct sutures. The anterior division of the abdomen is large with the usual divisions well marked, and is a little produced behind medianly. The posterior division is large and divided into two domes not very salient, with a dimple each side of the median sulcus above; behind these the surface is tumid and abrupt to the end. The posterior notch has a much reduced median process and is deep in the vertical direction. The epistome is prominent and granular with a small median knob; the upper lip has a deep transverse sulcus. The basal antennular joints almost touch each other at their proximal posterior angles, the 2nd joints are small, the 3rd much narrower and, after the 1st, which is much longer, there are 40 very short joints to each flagellum. The legs are robust, and

in place of the furry pads on the usual joints there are crowds of small bristles among which are longer ones on the 1st pair. The internal ramus of the uropod is short, not reaching the end of abdomen; it is sublaminar and distally slightly truncate. The external ramus is long, indurated with a strong tooth on the outer side and subacute terminally.

The above characters are taken from a large specimen which is damaged and dry, and is evidently an adult male. This I have named as type. The following characters are of a young male (pl. iii., fig. 4) in the Western Australian collection which I name as co-type. The body is covered with an extremely short tomentum. The anterior division of abdomen is not produced behind. The posterior division divided into two lobes less salient than in the type specimen. The posterior notch is narrow and deep in vertical direction but with a pointed median lobe. Mandibles with incisory plates entire, the left with secondary plate slightly bifid; the basal portion of the mandible has a transverse ridge. The legs are rather spiny, especially the more posterior pairs. The endopod of 1st pleopod has an insinuation at its distal end, the peduncle carries four coupling spines, there is a larger proximal spine on the exopod, but it is not outstanding. The exopod of the 2nd pleopod exhibits an appendix approaching the whip-like character seen in other species. The rami of the 3rd are broad with the division line of the exopod quite near the end. The exopod of the 4th pleopod has two plumose setae, and the endopod has a distal notch. The exopod of the 5th pleopod is quite like that of *C. latreillei*, except that the principal squamous lobe is pedunculate.

The resemblance of this species to *P. (?) pubescens*, Ml. Edw. (see Trans. Roy. S. Austr., 1926, p. 262, and pl. xliii.) is remarkable, and in the case of the adult male a parallel condition occurs which I have noted in that species, viz., the uropods becoming cilicaeform. The young of the present species, that of *P. pubescens* and that of *C. latreillei*, are very difficult to distinguish; this applies in a slightly less degree to females of the same species.

Length of large specimen (male), 35 mm.; breadth, 20 mm.; length of smaller male, 25 mm.; breadth, 15 mm.

Type in South Australian Museum, co-type in Western Australian Museum.

Paracilicoea flexilis, n. sp.

Pl. iv., figs. 1-4.

Head evenly rounded in front, 1st thoracic segment of about the same length as each of the remaining ones of the thorax. The body is smooth, glabrous, but becoming setose behind, a slight longitudinal groove marks off the epimera, which are uniform, the last produced a little deeper, a small notch shows on the posterior border of the 2nd and 3rd; the posterior margin of the 7th segment of thorax shows two slight submedian prominences behind. The abdomen is tuberculate and setose, the tubercles are numerous, being more or less spinuliform, and arranged mostly in longitudinal rows. The anterior division is very short, marked with the usual lines; the posterior not very convex; the posterior margin is conspicuously 3-lobed, with a broad and shallow channel below. The epistome is small and the labrum covered with brown dots. The antennule has a stout basal joint, the 2nd about one-third the length of the 1st, the narrow 3rd joint is only a little longer than the 2nd, the flagellum about the same length as the peduncle, the joints about 19 in number and very short. The antennal peduncle has short joints and a flagellum of 25 joints, very setose. The mandibles are very strong with entire incisory plates, in the left the secondary plate is very obscurely tridentate, the spine row is well developed, and there is a strong short molar with some dark spines on its inner margin. There is a large posterior lip. The 1st maxilla has a strong external ramus terminated by seven or eight strong spines

much worn and none are pectinate, the inner ramus has four curved pectinate spines. The 2nd maxilla is trilobed, the lobes short and reaching the same level, they bear some simple and pectinate spines. The maxilliped has the 2nd joint and its distal plate rather narrow, the palp has the 2nd, 3rd, and 4th joints with rather short lobes strongly setose, the terminal joint is just a little longer than the preceding one; there is a strong setum on the outer end of the 2nd joint of palp. The legs are robust. In the 1st the merus, carpus, and propodus have stout spines, the rest of the legs are sparsely spined but provided with furry pads on the usual joints. The filaments on the 8th thoracic sternite are slender. The 1st pleopod has a broad short peduncle with dense fur on the outer side and four coupling spines on the inner, the endopod is slightly longer than broad, the exopod, which lies obliquely, has a dense fringe and a proximal spine turned upwards. In the 2nd pleopod the appendix is short, reaching only to end of the endopod. The exopod of the 4th pleopod has a fringe of short setae on the whole of its external border, these become longer and plumose at the end, the endopod is very strongly marked with rugae and has an insinuation at the distal end. The exopod of the 5th pleopod is rather narrow, with a very oblique division, the distal part bearing three prominent squamose lobes, the proximal part with one lobe and a small one below it. The inner ramus of the uropod is very small, the outer is very long, curved inwards, and excavate on the inner side.

Length, without the uropods, 19 mm.; breadth, 9 mm.; uropods, 9 mm.

The non-ovigerous female of this species differs from the male in the following characters:—It is smaller, glabrous. The posterior division of abdomen is obscurely divided into two lobes or domes and the notch is not so deeply cut. The uropods are of ordinary shape and size and the rami subequal.

The specimens are from Cottesloe, Western Australia; collected by L. G. Glauret.

Type in Western Australian Museum, Nos. 10608/10617.

***Dynoides barnardii*, n. sp.**

Pl. vi., figs. 5-7.

The surface of the head is rather rough and an interorbital ridge is well marked. The segments of thorax bear minute granules disposed transversely. The margins of epimera have hairs so closely compacted as to appear membrane-like, resembling conditions found in many of the flat forms of Sphaeromidae. The epimeron of the 6th thoracic segment over-reaches that of the 7th. The anterior division of abdomen is very short with sutures not visible, and the process behind extends as far as the inner end of the notch of the following division, the margin of this process has some spiniform granules. The posterior division of the abdomen is domed and minutely granulate, and shelves away to the margin gradually. The posterior notch is an elongate sinus with converging and denticulate sides meeting behind, at its inner end is a small lobe. The epistome is obtuse, apically curved forwards, with rough surface. The eyes are large. The 1st and 2nd peduncular joints of the antennule are large and rough as the epistome, the flagellum carries 12 joints, the 1st joint of which is much shorter than the 3rd peduncular joint. The antenna is robust with flagellum of 17 joints. The mandibles are weak. The left mandible has the incisory plate 4-dentate, there is a secondary plate and spine row with the molar quite close to these, its margin is finely denticulate. The palp has two strong spines terminating the 2nd joint. 1st maxilla has the inner branch bearing four long curved plumose setae. The outer branch with four or five strong teeth and three curved and serrate spines. The maxillipeds are slender, the 2nd joint has some small teeth on its outer margin, the distal plate is narrow, and its distal fringe has some large blunt teeth

among the setae. The 2nd joint of palp is largest, the 3rd less than half its length, the 5th joint is shorter than the 4th. The legs are robust, becoming longer posteriorly, most of the joints are densely and finely furred, with very few spines. The 1st pleopod has rather narrow rami, the exopod has an unusually long outstanding proximal spine arising from a small prominence, the peduncle carries two coupling spines on its inner angle, the endopod has a thickened inner margin, the fringes of rami are very long. The appendix of the 2nd pleopod is like that of *D. serratisinus*, its distal portion apparently lies in a half sheath formed by the inner margin of endopod. The filaments of the 8th thoracic sternum are united at their bases as in the above-mentioned species. The exopod of the 3rd pleopod is without division. The 4th and 5th pleopods are also as in Dr. Barnard's species. The uropods are large and lamellar, rough and covered with fine setules, and are minutely serrate on distal margins. Colour whitish with median and lateral brown areas on thorax, the anterior division of abdomen is brown, the domed portion of the posterior division is blackish with light spots, the pleopods are tinged with brown, as also are the uropods.

The genus *Dynoides* was established by Dr. Barnard for a South African species in 1914; the present species is from the coast of New South Wales, associated with *Sphaeroma quoyana*, Ml. Edw., *S. walkeri*, Stebbing. I have pleasure in dedicating this species to the author of the genus.

***Dynamenella parva*, n. sp.**

Pl. iii., figs. 8-11.

The body is smooth and almost glabrous. The head is rounded and short. The eyes are large. The 1st segment of thorax longest, the 7th is longer than the 6th and longer than the anterior division of abdomen. The epimera are closely compacted together, those of the 6th and 7th segments are broader and rounded, the 7th reaching near to the level of 6th. The anterior division of abdomen is very short; the posterior is dome-shaped with a very faint median depression. The posterior notch is small and simple, almost cut in the vertical direction, so that it can only be seen when the animal is fully extended. The epistome is long, rather large, truncate anteriorly, and curved forward. The antennules are large; the 1st joint of peduncle not produced at its inner distal angle; the 2nd joint is large, the 3rd nearly equal to it in length, the flagellum of seven joints, five of which are long and subequal. The antenna also is robust, its flagellum carries 10 joints. The incisory plate of right mandible is slender, 4-dentate, row of spines and molar well developed and joint of palp subequal in length. Inner ramus of 1st maxilla with four curved setae, the outer ramus with the usual simple and branched spines. The 4th joint of the palp of the maxilliped has its lobe very short, the 5th joint is shorter than the 4th. The legs are strong, sparsely spined, but much clothed with soft woolly hair, the dactyles are short with secondary claws subequal to primary. The 1st pleopod has the endopod triangular, about as long as broad, with a small areolate area towards the inner proximal angle, bounded by a ledge on which the exopod rests. The exopod is larger, ovate, with small curved external proximal spine, the fringes are long, the peduncle is short with three coupling spines rather long, the outer side is bent towards the body. In the 2nd pleopod the peduncle is longer, the endopod is large with a thick appendix, which expands distally and considerably outreaches its end, the ovate exopod is a little smaller than the endopod and lies obliquely. The peduncle of the 3rd pleopod has straight sides, the endopod is larger than the exopod, which does not lie obliquely, and is without division. The exopod of the 5th pleopod carries a division and three outstanding squamose lobes; branchial folds on 4th and 5th pleopods are well developed on all rami. The

uropods are laminar, the rami are distally rounded, the outer much smaller than the inner.

Length of male, 3 mm.

Collected by H. M. Hale, Willunga reef, Gulf St. Vincent, South Australia. Type in South Australian Museum.

MORULOIDEA LACERTOSA, Baker.

Pl. i., figs. 9-11.

Moruloidea lacertosa, Baker, Trans. Roy. Soc. S. Austr., vol. xxxii., 1908, p. 150, pl. vii., figs. 1-10.

The female of this species differs from the male in not having such strongly developed antennae, and in having a median lobe in the posterior notch of the abdomen, the channel being deep. The mouth parts are normal, but the young are developed within the body. The head is very rugose and tuberculate.

In this species the method of folding the body—that is as a hinge about the middle—is similar to that of *cassidinopsis*.

A female specimen is in the South Australian Museum, which also holds the type.

HASWELLIA JUXTACARNEA.

Pl. iv., figs. 5-8.

Haswellia juxtacarnea, Baker, Trans. Roy. Soc. S. Austr., vol. 1., 1926, p. 274, pl. xlix., figs. 6, 7.

In 1926 I established this species on a dry specimen from Lord Howe Island on account of its differences from the closely allied species *H. carnea*, Haswell. I am now able to add to that very short description the following notes with figures taken from one specimen from the coast of New South Wales, which has recently come to hand.

The greater part of the body is smooth and glabrous. The process of the 7th segment of thorax is minutely serrate on the lateral margins, it reaches slightly beyond the end of abdomen, with a small turned-down hooked process; dorsally there is a median keel, and below there is a shelf similar to that of *H. carnea*. The anterior division of abdomen is quite obscured; the posterior is very obscurely trilobed, and descends at first very abruptly, then with a gradual declivity to the terminal notch, which is very narrow, and filled by a narrow median process, which is slightly raised, and exceeds the sides of the notch. The basal joint of antennule is rough on the surface, the flagellum bears 17 joints. The flagellum of the antenna has also 17 joints. The mandibles are weak; the cutting plates are 4-dentate, and there is a small secondary plate on the left mandible. The legs are moderately robust, sparingly spined, except the first, which has a few thorn-like spines on the 4th, 5th, and 6th joints. The dactyles of all are short, 2-clawed, the secondary claw minute. The filaments on the 8th sternite are very short. The 1st pleopod has a broad and short peduncle, there are three coupling spines, and the outer margin has rather scanty furry hairs, the endopod is small, much broader than long, the exopod is scaly, on the surface the outer margin has six or seven thorns. The 2nd pleopod has a longer peduncle, its exopod is abruptly articulated at the outer angle; it is also scaly on the surface with 13 thorns on the margin; the short appendix originates from about the middle of the endopod, as in *cerceis*, etc. The uropods are granulate to spiniform and densely ciliate towards the margins of the rami, the inner ramus is broad, embracing the end of abdomen on its inner margin; the outer is about the same length, and is distally a little emarginate.

The single specimen was collected by Mr. M. Ward near Manly, ocean side, Port Jackson, New South Wales, and as co-type is placed in the Australian Museum, Sydney.

Haswellia glauerti, n. sp.

Pl. v., figs. 1-5.

The head is short, the segments of thorax do not differ much in length. Eyes are moderate in size. Process of 7th thoracic segment in the male covering the whole of the abdomen and closely applied to it, and also covers much of the uropods when they are retracted; it is moderately convex above but shelves away towards the end, which is obtusely pointed, the point turned down, and bears spiniform granules on the margin; there is a small lateral notch on each side at the proximal end. The epimera of the other segments are uniform, except those of the 1st segment. The posterior notch of abdomen is very large, triangular, with small median process. The epistome is sculptured, with the labrum rather large. The 1st and 2nd antennular joints are sculptured, the 2nd joints are rather large, and are embraced by the inner distal angles of the 1st by about half their length, the 3rd joints are a little longer than the 2nd, the flagella carry 15 joints. The antennal flagellum has 19 joints. The left mandible has a slender, entire incisory plate with a trifid secondary plate, a spine row and large molar. The maxilliped has a long palp, the lobes of joints well developed with long setae. The terminal joint is long. The 1st pair of legs is shorter but more robust than the two following pairs, there are large thorn-like spines on the merus, carpus, and propodus of the 1st. The rest of the legs are sparsely spined and become longer and more robust posteriorly, they carry very short fur on the usual joints. The filaments of the 8th sternum are small. The pleopods are of the *cerceis* type. The 1st pair has a short peduncle and three stumpy coupling spines; the exopod has about eight small teeth at base of fringe, the endopod is much broader than long. In the 2nd pair the appendix is short, arising from the middle of its lamina, the exopod has 15 teeth on the margin, and from the surface of the endopod there arise three or four longish plumose hairs. In the 3rd pair the endopod is broad and the exopod with a division, the peduncle is longer than in the two preceding pairs. The exopod of the 5th pair is narrow, the distal division carries two lobes, both outstanding; there is also a small lobe on the inner margin of the proximal division. The uropods are sublaminar, the external ramus ovate and somewhat truncate, convex below, excavate above, bearing coarse granules and scanty hairs capable of a lateral setting towards the sides of the body; the inner ramus has an inner ridge below and is rather excavate externally from this.

In the same tube is a female specimen which evidently belongs to this species; it is about half the size of the male, and resembles the female of *H. emarginata*. The mouth parts are modified and the brood is probably internal. There is no process on the 7th thoracic segment. The anterior division of abdomen is rather tumid with the usual segments indicated, the posterior division is also tumid with a prominent knob which terminates a faint median ridge behind; the posterior notch is simple, deep in the vertical direction and semicircular. The epistome and antennular joints are not so sculptured as in the male. The body is covered with many black dots and is almost glabrous.

Length of male, 12 mm.

The specimens were collected from a sponge cavity, Cottesloe, Western Australia, by L. G. Glauert.

The type is in Western Australian Museum, 11795-11759.

Group PLATYBRANCHIATAE.

Section CASSIDININI.

Syncassidina, n. gen.

Body expanded, moderately convex dorsally, epimera spreading out obliquely. The only part not partaking in the outline being the anterior angles of the posterior division of abdomen. Margin fringed with small setules.

Antennules partially separated from each other by process of epistome, which shows wedge-shaped above, 1st and 2nd joints expanded, and upper surfaces in full view from above.

Epistome with pyramidal prolongation.

Mandibles normal.

Maxillipeds resembling *chitonopsis*, the 3rd joint of palp with small lobe occupying all the front.

Endopod of 1st pleopod narrow, about four times longer than broad.

Exopod of 3rd pleopod without division, both rami without long fringe.

No exopods to uropods.

Syncassidina aestuaria, n. sp.

Pl. v., figs. 6-10.

Body oblong-ovate, all segments reaching the margin except the anterior angles of the posterior division of abdomen. Margin strongly fringed, moderately convex. The anterior division of abdomen very short, not showing the lines of coalesced segments. The posterior division is convex, its anterior angles acute; there are two obscure median tubercles above, and the end is obtuse without notch or channel. Epistome with subpyramidal process; it is hirsute, and bears a large labrum, which rather obscures the lateral limbs and projects at nearly a right angle from the mandibles. Basal joint of antennule large, expanded, 2nd joint also expanded but much smaller, 3rd joint narrow and short; flagellum with five or six rather long joints, the antepenultimate one with small appendage which reaches to end of flagellum. Peduncle of antenna with 1st two basal joints rather broad, the following three subequal in length but becoming narrower, flagellum with 7 joints. Left mandible rather weak with small incisory plate 2-dentate consisting of a long and short tooth, secondary plate trifid, one curved spine and a moderate size molar and small palp. Right mandible with small incisory tooth and row of spines. The 1st maxilla has the outer ramus short with strong distal spines, one or two of which are finely pectinate, inner ramus slender with four curved plumose setae. 2nd maxilla trilobed. Maxillipeds with the plate of 2nd joint distally oblique, bearing several long pectinate setae, the 2nd palpal joint expanded without lobe, the 3rd with a small lobe occupying nearly all the front of the joint, 4th scarcely lobed, about the same length as the 5th, fringes scanty. Legs similar but becoming longer posteriorly, very sparsely spined, the 7th joints with primary and secondary unguis, giving chelate appearance. Peduncles of pleopods narrow. The 1st pleopod has the exopod ovate, the endopod narrow-oblong and about four times as long as broad; there are three coupling spines on the peduncle. The exopod of the 2nd pleopod is very convex on the outer margin and nearly straight on the inner, its endopod is wider than that of the 1st. The exopod of the 3rd pleopod is without division and has only a fringe of fine setules; on the inner margin there is a small insinuation. The exopod of the 4th pleopod is without division, the endopod is rather thick but without branchial rugae. The exopod of the 5th pleopod is much longer than the endopod, it has a division and is obtusely pointed at the end, there are two

squamiform lobes on the proximal portion, and the distal portion is squamose all over. The uropods are large, all trace of an exopod has disappeared.

Length, 5 mm.

The specimens, which appear to be all females, are from Rocky Bay, Swan River, Western Australia. Collected by L. G. Glaucert.

The type is in Western Australian Museum, No. 11180.

DESCRIPTION OF PLATES I. TO VI.

PLATE I.

Fig. 1: *Exosphaeroma serventi*, n. sp. Fig. 2: *id.*, anterior region from below. Fig. 3: *Isocladus excavata*, Baker. Fig. 4: *Cymodoce multidentis*, Richardson, var. *australis*, n. var., anterior region from below. Fig. 5: *id.*, posterior region from above. Fig. 6: *id.*, posterior region from below. Fig. 7: *Cymodoce aculeata*, var. *grandis*, n. var., posterior region from above. Fig. 8: *id.*, posterior region from below. Fig. 9: *Moruloidca lacertosa*, Baker, anterior region from below, female. Fig. 10: *id.*, posterior region from below, male. Fig. 11: *id.*, posterior region from below, female.

PLATE II.

Fig. 1: *Cymodoce bidentata*, Haswell, var. *tasmanica*, n. var., posterior region from above. Fig. 2: *Cymodoce coronata*, Haswell, var. *fusiformis*, n. var., anterior region from below. Fig. 3: *Cymodoce coronata*, Haswell, posterior region from above. Fig. 4: *id.*, posterior region from below, female. Fig. 5: *Cymodoce coronata*, var. *fusiformis*, n. var., female. Fig. 6: *id.*, male. Fig. 7: *id.*, posterior region from below. Fig. 8: *id.*, posterior region from above. Fig. 9: *Cymodoce coronata*, var. *intermedia*, n. var., posterior region from above.

PLATE III.

Fig. 1: *Paracilicaca gigas*, n. sp., posterior region from above. Fig. 2: *id.*, posterior region from below. Fig. 3: *id.*, anterior region from below. Fig. 4: *id.*, posterior region of young male. Fig. 5: *Cilicacopsis sculpta*, n. sp. Fig. 6: *id.*, anterior region from below. Fig. 7: *id.*, posterior region from below. Fig. 8: *Dynamenella parva*, n. sp., posterior region from below. Fig. 9: *id.*, male. Fig. 10: *id.*, epistome. Fig. 11: *id.*, 2nd pleopod.

PLATE IV.

Fig. 1: *Paracilicaca flexilis*, n. sp. Fig. 2: *id.*, anterior region from below. Fig. 3: *id.*, posterior region, female. Fig. 4: *id.*, posterior region from below, male. Fig. 5: *Haswellia juxtacarnea*, Baker. Fig. 6: *id.*, posterior region from below. Fig. 7: *id.*, posterior region from above projecting segment of thorax and exopods of uropods removed. Fig. 8: *id.*, anterior region from below. Fig. 9: *Cymodoce bidentata*, var. *tasmanica*, posterior region from below.

PLATE V.

Fig. 1: *Haswellia glauerti*, n. sp. Fig. 2: *id.*, anterior region from below. Fig. 3: *id.*, posterior region from below. Fig. 4: *id.*, posterior region from below, female. Fig. 5: *id.*, side view of posterior region. Fig. 6: *Syncassidina aestuaria*, n. sp. Fig. 7: *id.*, epistome. Fig. 8: *id.*, 1st leg. Fig. 9: *id.*, maxilliped. Fig. 10: 1st pleopod.

PLATE VI.

Fig. 1: *Cymodoce longistylis*, Miers, abdomen from above. Fig. 2: *id.*, epistome. Fig. 3: *id.*, female abdomen from above. Fig. 4: *id.*, male abdomen from below. Fig. 5: *Dynoides barnardii*, male. Fig. 6: *id.*, anterior region from below. Fig. 7: *id.*, abdomen of male from below. Fig. 8: *Cilicaca curtispina*, Haswell. Fig. 9: *id.*, female.











